PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Richard J. Mehus, Charles A. Hodge and Quang Van Dao	Confirmation No.	9839
Serial No.:	10/602,384		
Filed:	June 24, 2003	Customer No.:	28863
Examiner:	Samuel P. Siefke		
Group Art Unit:	1797		
Docket No.:	1092-015US01/1653US01		
Title:	CONCENTRATION MONITOR		

CERTIFICATE UNDER 37 CFR 1.8 I hereby certify that this correspondence is being transmitted via the United States Patent and Trademark Office electronic filing system on March 12, 2009.

By: Nancy J. Burr
Name: Nancy J. Burr

BRIEF ON APPEAL

Mail Stop Appeal Brief—Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

This is an Appeal Brief responsive to the Final Office Action mailed on October 20, 2008 and the Notice of Panel Decision from Pre-Appeal Brief Review mailed February 23, 2009. Accordingly, the deadline for this Appeal Brief is March 23, 2009.

Please charge Deposit Account No. 50-1778 in the amount of $540.00 for Appellant's Appeal Brief fee for large entity.

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REAL PARTY IN INTEREST

The patent owner of the above-identified application is Ecolab Inc. of 370 Wabasha St. North, St. Paul, MN 55102, and is the real party in interest for the application in this appeal.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN APPLICATION:

Claims 1-7, 18-22 and 24

B. STATUS OF ALL THE CLAIMS:

Claims allowed: None
Claims objected to: None
Claims rejected: 1-7, 18-22 and 24
Claims cancelled: 8-13, 23 and 25
Claims withdrawn from consideration: 14-17

C. CLAIMS ON APPEAL: 1-7, 18-22 and 24

STATUS OF AMENDMENTS

No amendments have been filed since the Final Office Action mailed on October 20, 2008. The claims stand as presented in the Response filed January 14, 2008, as shown in the attached Claims Appendix.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 recites a concentration monitor[1] comprising a resistivity probe that measures resistivity of a selected one of a plurality of use solutions,[2] a temperature sensor that measures a temperature of the selected use solution,[3] a memory that stores a plurality of predetermined algorithms, each associated with a different one of a plurality of product classifications[4] and a controller that calculates a concentration of a product in the selected use solution based on the resistivity, the temperature and one of the plurality of the predetermined algorithms associated with a product classification of the product in the selected use solution.[5]

[1] See, e.g., Specification at page 2, lines 29-31; page 6, lines 4-5; page 8, lines 20-21; FIGS. 5 and 6, ref. num. 18.
[2] See, e.g., Specification at page 3, lines 26-28; page 4, lines 9-10; page 4, lines 30-32; page 5, lines 3-4; page 8, lines 13-19; page 9, lines 1-5; page 10, lines 11-12; page 11, lines 10-13; FIGS. 5 and 6, ref. num. 28; FIG. 7, ref. nums. 110, 116.
[3] See, e.g., Specification at page 3, lines 28-30; page 4, lines 10-12; page 4, line 32 to page 5, line 1; page 5, lines 4-5; page 6, lines 22-24; page 9, lines 1-3; page 10, lines 10-11; page 11, lines 13-15, FIGS. 5 and 6, ref. num. 26; FIG. 7, ref nums. 112, 118.
[4] See, e.g., Specification at page 3, lines 12-21; page 3, line 31 to page 4, line 2; page 6, lines 9-13; page 9, lines 6-19; page 10, lines 6-10; page 10, lines 22-31; FIGS. 5 and 5, ref. num. 30.
[5] See, e.g., Specification at page 2, line 31 to page 3, line 5; page 3, lines 12-21; page 3, line 31 to page 4, line 2; page 4, lines 12-17; page 5, lines 5-8; page 8, line 22 to page 9, line 2; page 9, lines 20-33; page 10, lines 22-31; page 11, lines 17-20; FIGS. 5 and 5, ref. num. 24; FIG. 7, ref. num. 120.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Appellant submits the following ground of rejection to be reviewed on Appeal:

(1) The first and only ground of rejection to be reviewed is the rejection of claims 1-7, 18-22 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Nomura et al. (U.S. 6,706,533).

ARGUMENT

In the Final Office Action mailed on October 20, 2008, the Examiner rejected claims 1-7, 18-22 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Nomura et al. (U.S. 6,706,533).

Appellant respectfully traverses this rejection, and requests reversal by the Board of Patent Appeals based on the arguments below.

Appellant respectfully submits that Nomura does not teach or suggest the inventions defined by Applicant's claims, and provides no rational reason that would have lead one of ordinary skill in the art to arrive at the claimed invention. The Examiner has not provided a reference or teaching, either within the Nomura reference itself or for any other rational reason, that demonstrates why one of ordinary skill in the art would have arrived at the claimed invention, as required to establish a prima facie case of obviousness under 35 U.S.C. §103..

Claim 1 recites, among other things, a memory that stores a plurality of predetermined algorithms, *each associated with a different one of a plurality of product classifications*, and a controller that calculates a concentration of a product in the selected use solution based on the resistivity, the temperature and a predetermined algorithm *associated with a product classification* of the product in the selected use solution.

Nomura concerns the estimation of the concentration of an agent (i.e., a particular chemical) in a solution through use of an equation. The equation of Nomura includes constants that are obtained by measuring the electrical conductivity of solutions having known concentrations of a chemical agent at a plurality of temperatures and applying the least squares method to the result.[6] Each agent has its own associated set of constants.[7] In other words,

[6] See, e.g., Nomura at col. 4, lines 11-18; col. 9 line 65 to col. 11, line 30.
[7] See, e.g., Nomura at col. 8, lines 65-67.

Nomura merely describes determining a set of constants for each agent to be measured. Importantly, Nomura does not teach or suggest that *the agents are further grouped into product classifications*. As a result, Nomura cannot and does not teach or suggest that that *each of a plurality of predetermined algorithms is associated with a different one of a plurality of product classifications*, as recited in independent claim 1. In addition, Nomura further cannot and does not teach or suggest a controller that determines the concentration of an agent *based on one of the plurality of the predetermined algorithms associated with a product classification*, as is also recited in claim 1.

The Final Office Action, however, does not address the fact that Nomura contains absolutely no teaching or suggestion concerning *product classifications*, much less teaching or suggesting a memory that stores a plurality of predetermined algorithms, each associated with a different one of a plurality of product classifications, and a controller that calculates a concentration of a product in the selected use solution based on the resistivity, the temperature and a predetermined algorithm associated with a product classification of the product in the selected use solution, as recited in Appellant's independent claim 1.

Rather, the Final Office Action merely asserts that it would be "predictable" to "store a plurality of different programs associated with different product *agents*."[8] Then, without ever making any kind of connection between agents and product classifications, or articulating any rational reason for doing so, the Final Office Action makes the conclusory statement that "it would have been obvious to incorporate a memory feature storing a plurality of different predetermined algorithms associated with different product agents *or classifications* in order to effectively use the disclosed monitoring apparatus in monitoring different product agents."[9]

Appellant respectfully disagrees with the conclusion of obviousness set forth in the Final Office Action. As stated in MPEP § 2141, the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc. (KSR)*[10] noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court, quoting *In re Kahn*,[11] stated that "'[R]ejections on obviousness cannot be sustained by mere conclusory

[8] Final Office Action at page 4.
[9] *Id.*
[10] *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. 398, 82 USPQ2d 1385 (2007).
[11] *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'"[12]

In the present case, the Examiner has not provided a reference or teaching, or any other rational reason why one of ordinary skill in the art would have included a memory that stores a plurality of predetermined algorithms, each associated with a different one of a plurality of *product classifications*, and a controller that calculates a concentration of a product in the selected use solution based on the resistivity, the temperature and a *predetermined algorithm associated with a product classification* of the product in the selected use solution, as recited in claim 1.

The distinction between individual chemical "agents", such as those described by Nomura, and Appellant's claimed "product classifications" is described in Appellant's specification as follows:[13]

> Each product or class of products, a product class, has different formulary chemistry and may have different conductivity curve, especially when measured from very low to very high product concentrations. Using detergent as an example, more caustic products, or product classes, tend to have higher conductivity relative to less caustic detergents.

Appellant's specification goes on to state:[14]

> [A] user of concentration monitor 18 could select an algorithm, or lookup table, from memory 30 from eight settings based on product classification. The desired equation or lookup table would be used to determine the concentration of use solution 20 and, hence, control the addition of concentrate to use solution 20.
>
> As an example for use solutions based on detergents, one controller algorithm could be used for a class of extruded products having naturally relatively low conductivity. Another setting could be used for very high concentrations of highly conductive liquid or solid caustic for application s found, for example, in food and beverage and vehicle care use situations.

Thus, Appellant's claims make an additional distinction that is not taught or suggested in Nomura, i.e., a distinction between the product or "agent" in the selected use solution and the product classification of the product. Namely, as recited in claim 1, the product (or "agent") has a particular product classification, which in turn is associated with one of the plurality of predetermined algorithms. In other words, rather than calculating the concentration based on a predetermined algorithm associated with each product (or "agent"), claim 1 recites that the controller calculates a concentration of a product in the selected use solution based one of the

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[12] *KSR*, 82 USPQ2d at 1396.
[13] Appellant's specification at page 6, paragraph [0031].
[14] Appellant's specification at page 10, paragraphs [0048] and [0049].

plurality of predetermined algorithms *associated with a product classification of the product* in the selected use solution.

Again, nowhere does Nomura teach or suggest that agents may have product classifications, or that the agent concentration may be determined based on based one of a plurality of predetermined algorithms associated with a product classification of the product ("agent") as recited in claim 1. At most, Nomura merely describes determining a set of constants for each agent to be measured. However, this teaching in no way suggests that agents may further have a product classification, and that each product classification in turn is associated with one of a plurality of predetermined algorithms used to determine the product concentration. In addition to the absence of any such teaching or suggestion in Nomura, the Examiner has similarly failed to provide any other rational reason that would have led one of ordinary skill in the art to arrive at Appellant's claimed invention.

Claims 2-7, 18-22 and 24 are dependent upon claim 1 and include all of the limitations thereof. Claims 2-7, 18-22 and 24 are therefore patentable for at least the same reasons discussed above with respect to independent claim 1.

For at least these reasons, the Examiner has failed to establish a prima facie case of non-patentability of Appellant's claims 1-7, 18-22 and 24 under 35 U.S.C. §103(a). Reversal of this rejection is therefore respectfully requested.

CONCLUSION

In view of the foregoing remarks, Appellant respectfully requests reversal of the outstanding rejection of claims 1-7, 18-22 and 24 under 35 U.S.C. §103(a) as being unpatentable over Nomura.

Please charge any additional fees or credit any overpayment to deposit account number 50-1778.

Respectfully submitted,

Date: March 12, 2009

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APPENDIX: CLAIMS ON APPEAL

Claim 1 (Previously Presented): A concentration monitor comprising:

a resistivity probe that measures resistivity of a selected one of a plurality of use solutions;

a temperature sensor that measures a temperature of the selected use solution;

a memory that stores a plurality of predetermined algorithms, each associated with a different one of a plurality of product classifications; and

a controller that calculates a concentration of a product in the selected use solution based on the resistivity, the temperature and one of the plurality of the predetermined algorithms associated with a product classification of the product in the selected use solution.

Claim 2 (Previously Presented): The concentration monitor of claim 1 wherein the controller stores information concerning identification of the selected use solution.

Claim 3 (Previously Presented): The concentration monitor of claim 2 wherein the controller receives user selected information concerning identification of the selected use solution a user controllable setting.

Claim 4 (Previously Presented): The concentration monitor of claim 1, further including a user interface that reports the concentration to a user.

Claim 5 (Previously Presented): The concentration monitor of claim 1 wherein the algorithm is linear.

Claim 6 (Previously Presented): The concentration monitor of claim 1 wherein the controller performs a function based upon the concentration.

Claim 7 (Previously Presented): The concentration monitor of claim 1 wherein the controller further controls addition of concentrate of the product to the use solution when the concentration falls below a predetermined level.

Claims 8-13 (Canceled).

Claim 14 (Withdrawn): A method comprising:

selecting one of a plurality of use solutions;

measuring a resistivity of the selected use solution;

measuring a temperature of the selected use solution; and

calculating a product concentration of the selected use solution based upon the resistivity, the temperature and a predetermined algorithm associated with the selected use solution.

Claim 15 (Withdrawn): The method of claim 14 further comprising reporting the concentration to a user.

Claim 16 (Withdrawn): The method of claim 14 further comprising adding concentrate of the product to the use solution when the concentration falls below a predetermined level.

Claim 17 (Withdrawn): The method of claim 14 further comprising inserting a resistivity probe into the selected use solution and inserting a temperature probe into the selected use solution.

Claim 18 (Previously Presented): The concentration monitor of claim 1 wherein the algorithm is determined based on empirical measurements of use solutions having known product concentrations.

Claim 19 (Previously Presented): The concentration monitor of claim 1 wherein the algorithm is determined based on empirical measurements of the conductivity of use solutions having known product concentrations.

Claim 20 (Previously Presented): The concentration monitor of claim 18 wherein the empirical measurements are taken over a range of temperatures.

Claim 21 (Previously Presented): The concentration monitor of claim 18 wherein the algorithm includes an equation fit to the empirical measurements.

Claim 22 (Previously Presented): The concentration monitor of claim 18 wherein the algorithm includes a lookup table corresponding to the empirical measurements.

Claim 23 (Canceled).

Claim 24 (Previously Presented): The concentration monitor of claim 23 wherein the product classification is user selectable.

Claim 25 (Canceled).

APPENDIX: EVIDENCE

None

APPENDIX: RELATED PROCEEDINGS

None